Executive Summary

EXECUTIVE SUMMARY
AIRPORT MASTER PLAN UPDATE
1985-2005
AVI SUQUILLA AIRPORT

INTRODUCTION

This project updates the Master Plan prepared by R.B. Williams & Associates, Inc. in 1980. It reflects the changes that have occurred over the past 5 years in the economic and regulatory environment and in the perceived needs of the community. To ensure that local interests and points of view are incorporated into this project, the work has been carried out in collaboration with an Airport Advisory Committee consisting of members and officials of the Colorado River Indian Tribes who represent a variety of community interests. Because of the comprehensive and detailed nature of the master plan update report, this summary addresses the basic structure of the project and highlights the major findings and recommendations resulting from the study effort.

On September 6, 1984, the Colorado River Indian Tribes (CRIT) submitted to the FAA a preapplication for federal assistance to develop an airport master plan update for Avi Suquilla Airport. During which time, CRIT also sought the services of Rocky Mountain Associates/ESE (now Reynolds, Smith and Hills) to perform the master plan update. The FAA Grant Offer (Project Number 3-04-0026-01) was accepted by CRIT in June of 1985; at which time, work on the project began.

GOALS AND OBJECTIVES OF THE MASTER PLAN UPDATE

The primary goals of this master plan are:

1. To determine the improvements necessary to accommodate existing and future aviation needs of CRIT, the Town of Parker, and La Paz County;
2. To address any short-range planning needs to optimize any funding opportunities for the short-term; and

3. To provide CRIT with a set of planning options concerning the long-range requirements needed to meet projected aviation demand.

PROJECT OBJECTIVES

The project objectives of this master plan are to:

1. Identify airside, landside, and airspace improvements by planning stage, as well as by threshold level, that are required to meet the anticipated demand levels;
2. Establish an implementation schedule for immediate and short-term airport improvements to enhance the safety and use of the Airport that will not forestall future planning options;
3. Quantify the economic impact of the Airport on the Town of Parker and the Colorado River Indian Reservation; and
4. Address major environmental issues that are directly related to the continued development of Avi Suquilla Airport with an evaluation of viable alternatives/solutions.

EXISTING CONDITIONS

An evaluation of existing conditions at Avi Suquilla Airport was made at the onset of the project to become familiar with the Airport's characteristics and to identify any special situations or conditions that required immediate attention. This evaluation also set the stage for the detailed analysis which followed. The initial inspection of the Airport revealed that the runway and taxiway surfaces were in fair condition with some minor cracking occurring along the edges. The aircraft parking apron was perhaps the single most critical factor at the Airport in terms of needing improvement or attention. Both aprons north and south of the existing paved central apron are in serious need of reconstruction, as loose aggregate on these surfaces posed a safety hazard to aircraft and people alike. Additionally, the five-stall shade hangar located on the south apron is in poor condition and should be replaced. All other buildings and Airport lighting appeared to be in good shape.

Airspace in the vicinity of the Airport was found to be adequate, based on the current levels of activity and no critical impacts were noted with regard to the natural environment, water quality, air quality, and noise.

AVIATION DEMAND FORECASTS

Aviation demand forecasts contained in the master plan update were developed based on Federal Aviation Administration (FAA) forecasts for the southwestern region, material information from the 1980 Airport Master Plan, past growth trends of various aviation demand elements, and other related socioeconomic factors which were extended into the future using a variety of statistical techniques. A degree of professional judgment was also used to determine whether the projections could be deemed a reasonable forecast of the future activity. Table 1 shows the consolidated forecasts developed in the analysis.

AIRPORT CAPACITY

In estimating the capacity of the existing runway/taxiway system, the major elements of airfield capacity were examined to determine their overall effect on the Airport's ability to accommodate forecast levels of aviation activity. The results indicated that no runway/taxiway capacity constraints may be expected during the planning period, and that the projected fleet mix for the Airport would remain essentially the same throughout the planning period. The analysis also indicated that the runway's alignment is satisfactory given local wind conditions.

FACILITY REQUIREMENTS

The results of the forecast and capacity analyses were applied to standard planning formulas to determine facility requirements for the planning period. The planning formulas used produced approximations as to the size of the required facilities, which permitted the establishment of general spatial relationships. The most noted shortcoming of all of the Airport's major elements was the aircraft parking ramp and its inability to handle extreme peaks of activity which occur frequently

Table 1. Consolidated Forecasts--Avi Suquilla Airport

Activity	1984	1990	1995	2005
Based Aircraft:				
Single-Engine	30	36	38	45
Multi-Engine	3	3	3	4
Turbo-prop	0	1	2	3
Turbojet	0	0	1	2
Rotor	1	1	2	2
TOTAL	34	41	46	56
Enplaned Passengers Departing:	10,673	24,818	30,218	40,810
Itinerant Operations:	11,870	14,720	16,880	21,450
Local Operations:	8,955	10,790	11,875	13,950
Total Operations:	20,825	25,510	28,755	35,400
Operations by Aircraft Type:*				
Class A	19,724	23,895	26,652	32,292
Class B	1,101	1,610	2,088	3,088
Class C	0	5	15	20
Class D	0	0	0	0
TOTAL	20,825	25,510	28,755	35,400
Instrument Operations:	208	255	288	354
Instrument Approaches:	42	51	58	71

*Class Definitions:
Class A - Single-engine 12,500 pounds or less maximum certified takeoff weight (MCTW).
Class B - Multi-engine 12,500 pounds or less (MCTW).
Class C - Large multi-engine (12,500 to 300,000 pounds MCTW).
Class D - Heavy multi-engine (300,000 pounds MCTW or more).

Sources: AC 5060-5 Capacity Planning Manual.
RS&H, 1985.

throughout the year due to the area's recreational flavor. Therefore, apron expansion and improvement were recommended as a result of this analysis. The runway's length, width, and the general Airport geometry, as well as the existing instrument approach, were found to be adequate for the projected activity and fleet mix. Consequently, no change in the Airport's role (general utility) is expected during the planning period. However, it was recommended that the runway centerline/building restriction line separation distance be maintained as they presently exist in the event that actual activity and fleet mix exceed that which was forecasted. Tables 2 and 3 summarize the Airport's existing and future role as well as its projected facility requirements.

AIRPORT DEVELOPMENT ALTERNATIVES

Since no capacity constraints or critical shortcommings were identified in the capacity and facility requirements analyses, the recommendations regarding facility requirements dealt primarily with improving or upgrading elements which presently exist at the Airport. Consequently, the alternatives became "no project" and "project implementation" to which the sponsor chose the latter.

LAND USE COMPATIBILITY AND ENVIRONMENTAL REVIEW

Both on- and off-airport land uses were examined from the standpoint of aircraft noise and aviation/nonaviation applications. It was determined that aircraft utilizing Avi Suquilla Airport will not subject off-Airport property to sound levels greater than 65 Ldn through the year 2005. Additionally, it was determined that agricultural activity may continue adjacent to the Airport as long as the crops grown are not attractive to large numbers of birds. Vacant land between the Airport and Parker can be developed without restrictions due to generation of aircraft noise. Commercial development is likely along State Highway 95 and will be compatible with Airport operations. Industrial activity is also encouraged, especially east of the industrial district in the Town of Parker, since this area is the closest point between the Airport and Parker. To regulate the height of future development in the vicinity of

Table 2. Existing and Future Design Criteria--Avi Suquilla Airport

Item		Existing	Future
Airport Data			
Airport Elevation		449.2 ft	Same
Airport Reference Point (ARP)		LAT N34°09'05" LNG W114°16'15"	Same
Mean Maximum Temperature		108.6	Same
Functional Role (NPIAS)		General Aviation	
Aircraft Design Group		II	Same
Approach Category		B	Same
Aircraft Class		B	Same
FAA Part 77 Designation		Utility-Visual	Same
Runway Data			
Physical Length		4800 ft	Same
Displaced Threshold		None	Same
Runway Width		75 ft	Same
Effective Gradient		Rwy 01--0.069% Rwy 19--0.069%	Same
Pavement Strength		20,000 lbs (SW)	Same
Runway Lighting		MIRL	Same
Runway Marking		VISUAL	Same
Runway Bearing (Azimuth)		N26°14'30" TRUE	Same
Surface Composition		Asphalt/Concrete	Same
Wind Coverage		96.3%	Same
Approach Aids	Rwy 01:	VASI/VOR DME-A Circling Appr.	REILS
	Rwy 19:	VASI/VOR DME-A Circling Appr.	REILS
Operational Role		General Utility	Same
Critical Aircraft		Beech King Air 200	Same
Geometry and Minimum Separation Distance			
Primary Surface:			
Length		5,200 ft	5,200 ft
Width		250 ft	250 ft
Obstacle Free Zone:			
Length		5,200 ft	5,200 ft
Width		250 ft	250 ft
Runway Safety Area:			
Length		5,400 ft	5,400 ft
Width		150 ft	150 ft

Table 2. Existing and Future Design Criteria--Avi Suquilla Airport
(Continued, Page 2 of 2)

Item	Existing	Future
Runway Centerline to:		
Parallel Taxiway	240 ft	240 ft
Building Restriction Line	500 ft*	500 ft*
Taxiway Centerline to:		
Parked Aircraft	64 ft	64 ft

* Minimum requirement is 250 ft in accordance with FAA AC 150/5300-4B; however, it is recommended that the 500-ft separation be maintained for purposes of possible future commuter activity or an unforseen change in the role or operational utility of the airport.

Sources: FAA AC 150/5300-4B, 1983.
RS&H, 1985.

Table 3. Summary of Facility Requirements by Planning Year--Avi Suquilla Airport

Facilities	Existing	Projected Requirement 1990	1995	2005	Recommended Action
AIRSIDE:					
Runway 01/19					
Length and Width	4,800' x 75'	—	—	—	Patch and
Strength	20,000 LB/SW	—	—	—	Seal Coat
Taxiway					
Length and Width	4,800' x 50'	—	—	—	Patch and
Strength	20,000 LB/SW	—	—	—	Seal Coat
NAVAIDS					
Runway 01	VASI,MIRL	REILS	—	—	Install REILS
Runway 19	VASI,MIRL	REILS	—	—	(Environmental Assessment)
Approach	VOR-DME A	—	—	—	None
Approach Slope					
Runway 01	20:1	—	—	—	Keep Approaches
Runway 19	20:1	—	—	—	Clear
LANDSIDE:					
Apron	39,400	34,500	37,500	44,000	Resurface and Expand
Tiedowns	75	102	111	130	Expand
Buildings					
T-Hangars (5 unit)	1	2	3	4	Expand
Conventional Hangars	1	1	1	2	None
Corporate Hangars	0	0	0	0	None
GA Terminal (SF)	3,000	3,000	3,000	3,000	None
Automobile Parking					
Long-Term Spaces	90	115	125	150	Expand
Long-Term SY	2,650	4,580	4,980	5,975	
Short-Term Spaces	15	20	25	30	Expand
Short-Term SY	615	665	900	970	

Source: RS&H, 1985.

the Airport, a height restrictions ordinance should be adopted which reflects the restrictions of Part 77 surfaces as identified in this plan. In addition to land use compatibility, an environmental review was conducted addressing social and induced socioeconomic impacts, air and water quality, biotic communities, wetlands, and floodplains. No significant negative impacts were found.

PROGRAM SCHEDULE AND FINANCIAL FEASIBILITY

Based on the results of the previous analyses, a schedule for program implementation was developed as shown in Table 4. Programmed improvements include the patching and seal coating of existing runway and taxiway surfaces, the construction of new apron pavement, and the construction of new T-hangars on the south end of the aircraft parking apron.

To determine the financial feasibility of the improvement program, Airport revenues and expenses for the past 3 years were examined and projected over the period of program implementation. The results of this analysis revealed the net present value of the program to be approximately $432,000 with an internal rate of return of 12.5 percent indicating that the program is financially feasible. However, a great deal of the Airport's revenue is generated by the activities of the FBO and its expanded air cargo operations, and consequently, much of the success of the Airport improvement program will depend on management's ability to generate profits from FBO and air cargo operations. Several suggestions are made throughout the financial section regarding Airport rates and charges which management may use to improve the Airport's revenue-generating capability. Tables 5 and 6 and Figure 1 summarize the Airport's historical revenue/expense relationships and projections of these relationships respectively.

ECONOMIC IMPACT

The economic data necessary to determine the economic benefits of continued Airport operation were obtained from the U.S. Department of

Table 4. Schedule of Airport Improvements - Avi Suquilla Airport

Phase	Schedule of Airport Improvements	Estimated Cost	Federal	State	Sponsor	Private	Remarks
Phase I (1986-1990)	***Patch and Seal-Coat Existing Paved Apron (Central area consisting of approximately 16,000 square yards)	$47,846.00	$43,061.00	—	$4,785.00	—	Preapplication submitted to FAA. Unit cost per sy $23.5.
	***Construct Asphalt Pavement North and East of Existing Paved Apron (Approximately 19,700 square yards)	$265,598.00	$239,038.00	—	$26,560.00	—	Preapplication submitted to FAA. Unit cost per sy $11.77.
	***Grade, Compact, and Oil Apron South of Existing Pavement (Approximately 18,000 square yards)	$134,427.00	$120,985.00	—	$13,443.00	—	Preapplication submitted to FAA. Unit cost per sy $6.39.
	***Patch and Seal-Coat Runway and Taxiway (Approximately 72,300 square yards)	$200,135.00	$180,121.00	—	$20,013.00	—	Preapplication submitted to FAA. Unit cost per sy $2.41.
	***Install 5 New Tiedowns and reposition approximately 21 existing tiedowns	$4,004.00	$3,604.00	—	$400.00	—	Preapplication submitted to FAA. Cost per new tiedown $36.00.
	*Construct New 8-Unit T-Hangar and taxilanes (1,300 square yards)	$116,457.00	$104,811.00	—	$11,646.00	—	Sponsor financed or financed by private interests. Cost per T-hangar Unit, $9,500 pavement. Cost per sy $8.23.
	*Construct T-Hangar Access Road and T-Hangar Parking Facility (Approximately 2,850 square yards of pavement)	$58,636.00	$52,773.00	—	$5,864.00	—	Sponsor financed or financed by private interests. Cost of pavement per sy $17.44. Site preparation for T-hangar area may be eligible for federal assistance if part of a larger project. Taxilanes between hangars are typically eligible for funding, but the connectors to the building are not.
TOTAL COST Phase I		$827,103.00	$744,393.00	$0.00	$82,711.00	$0.00	

Table 4. Schedule of Airport Improvements - Avi Suquilla Airport (Continued, Page 2 of 3)

Phase	Schedule of Airport Improvements	Estimated Cost	Federal	State	Sponsor	Private	Remarks
Phase II (1991-1995)	*Install 6,480 Feet of Safety Fencing on East Side of Airport	$18,108.00	$16,298.00	—	$1,811.00	—	To replace old barbed wire and control access to east side. Cost per linear foot $2.30.
	***Construct Asphalt Pavement South of Existing Paved Apron (Approximately 18,000 square yards)	$227,797.00	$205,017.00	—	$22,780.00	—	Preapplication submitted to FAA. Pavement cost per sy $10.55.
	*Install REILS (Runway End Identifier Lights) at each runway end	$4,278.00	$3,850.00	—	$428.00	—	Accomplished under FAA F&E Program. Approximately $2,139 per runway end.
	***Install 10 New Tiedowns on South Apron - Reposition approximately 45 existing tiedowns	$3,080.00	$2,772.00	—	$308.00	—	Preapplication submitted to FAA. Cost per new tiedown $36.00.
	*Construct Addional 8-Unit T-Hangar and taxilanes (approximately 960 square yards of pavement)	$112,751.00	—	—	$112,751.00	—	Sponsor financed or financed by private interests. Cost per T-hanger unit, $9,500. Pavement cost per sy $8.23.
	*Pave Parking Lot North of FBO (approximately 3,600 square yards)	$33,410.00	—	—	$33,410.00	—	Sponsor financed. Cost per sy $9.77.
	*Expand Long-Term Automobile Parking Area (approximately 1,000 square yards). Install 100 linear feet of new fence	$12,671.00	—	—	$12,671.00	—	May be accomplished by "in-kind" services - cost includes grading oiling and fencing only. Unit cost per sy $10.56.
	*Construct new access road to long-term parking area; 1,000 sy pavement	$12,395.00	$11,155.00	—	$1,239.00	—	Cost per sy $10.33.
TOTAL COST Phase II		$424,490.00	$239,092.00	$0.00	$185,398.00	$0.00	

Table 4. Schedule of Airport Improvements - Avi Suquilla Airport (Continued, Page 3 of 3)

Phase	Schedule of Airport Improvements	Estimated Cost	Federal	State	Sponsor	Private	Remarks
Phase III (1996-2005)	***Construct Additional Apron Pavement and Taxiway Stub on North End of Aircraft Parking Ramp (approximately 10,300 square yards)	$150,234.00	$135,211.00	—	$15,023.00	—	Preapplication submitted to FAA cost per sy $12.52.
	*Expand Parking Lot North of FBO by approximately 2,225 square yards	$25,275.00	—	—	$25,275.00	—	Sponsor financed. Cost per sy $9.47.
	*Expand Long-Term Automobile Park Area (approximately 975 square yards). Install approximately 140 linear feet of fencing	$11,462.00	—	—	$11,452.00	—	May be accomplished by "in-kind" services - cost includes grading oiling and fencing only. Cost per sy $9.80. Cost per linear foot $2.30.
	*Construct Additional 4-Unit T-Hangar (Cabin Class Twins) and taxilanes (approximately 844 sy)	$60,374.00	—	—	$61,710.00	—	Sponsor financed or financed by private interests. Cost per T-Hangar Unit, $9,500. Cost per sy pavement $8.23.
TOTAL COST Phase III		$247,345.00	$135,211.00	$0.00	$113,470.00	$0.00	
TOTAL PROGRAM COSTS		$1,498,938.00	$1,118,696.00	$0.00	$381,579.00	$0.00	

Source: RS&H, 1986.

Table 5. Statement of Revenues, Expenses and Changes in Retained Earnings—Avi Suquilla Airport

Category	1982*	1983**	1984
OPERATING REVENUES:			
Flight Operations	$185,896.00	$196,008.00	$320,825.00
Line Services	178,024.00	114,318.00	121,041.00
Aircraft Maintenance	33,045.00	93,266.00	81,560.00
Hangar/Tiedown Fees	4,888.00	15,343.00	18,929.00
Miscellaneous	4,800.00	576.00	2,726.00
Total Operating Revenue	$406,653.00	$419,511.00	$545,081.00
Cost of Services:	($336,616.00)	($281,035.00)	($411,526.00)
Gross Profit	$70,037.00	$138,476.00	$133,555.00
GENERAL OPERATING EXPENSES:			
Administrative	$74,210.00	$73,891.00	$102,503.00
Utilities	14,541.00	18,872.00	23,893.00
General Maintenance	3,557.00	3,965.00	6,170.00
Depreciation	42,505.00	5,899.00	9,418.00
Supplies	3,793.00	7,632.00	10,016.00
Outside Services	3,502.00	7,887.00	9,649.00
Bad Debts	660.00	—	—
Interests	1,393.00	—	—
Insurance	16,981.00	—	9,320.00
Miscellaneous	3,450.00	1,859.00	3,913.00
Total General Operating Expense	$164,592.00	$120,005.00	$174,882.00
Net Income (Loss) from Operations:	($94,555.00)	$18,471.00	($41,327.00)
Other Income (Expense):	($400.00)	($26,391.00)	($17,396.00)
Net Gain (Loss):	($94,955.00)	($7,920.00)	($58,723.00)
Retained Earnings (Deficit): End of Period	($188,374.00)	($196,294.00)	($262,840.00)

* Fiscal Year in 1982 ended on December 31st.

**Fiscal Year in 1983 ended on September 30th. Therefore, only 9 months are accounted for in 1983 due to the change in accounting periods.

Source: CRIT financial records for the years indicated.
RS&H, 1985.

Table 6. Cash Flow Statement, $ Thousands - Avi Suquilla Airport

During Year	Revenue	Fixed Capital	Working Capital	Ongoing Operating Cost	Unusual Expense	Operating Cash Flow	Debt Proceeds/ Repayment	Net Tax	Aftertax Cash Flow
1986	545	(381)	(106)	(587)	(17)	(546)	252	0	(294)
1987	577	0	(4)	(609)	0	(35)	(30)	0	(66)
1988	611	0	(4)	(631)	0	(24)	(30)	0	(54)
1989	647	0	(4)	(655)	0	(12)	(30)	0	(42)
1990	685	0	(4)	(679)	0	2	(30)	0	(28)
1991	726	0	(5)	(704)	0	17	(30)	0	(13)
1992	769	0	(5)	(730)	0	34	(30)	0	4
1993	814	0	(5)	(757)	0	52	(30)	0	22
1994	862	0	(5)	(785)	0	72	(30)	0	42
1995	913	0	(5)	(814)	0	94	(30)	0	64
1996	967	0	(5)	(844)	0	117	(30)	0	87
1997	1,024	0	(6)	(875)	0	143	(30)	0	113
1998	1,084	0	(6)	(908)	0	171	(30)	0	141
1999	1,148	0	(6)	(941)	0	201	(30)	0	171
2000	1,216	0	(6)	(967)	0	234	(30)	0	203
2001	1,288	0	(7)	(1,012)	0	269	(30)	0	239
2002	1,364	0	(7)	(1,050)	0	307	(30)	0	277
2003	1,444	0	(7)	(1,089)	0	349	(30)	0	319
2004	1,529	0	(7)	(1,129)	0	393	(30)	0	363
2005	1,620	0	(8)	(1,171)	0	441	(30)	0	411
2006	0	0	211	0	0	211	(53)	0	158
2007	0	0	0	0	0	0	0	0	0
2008	0	0	0	0	0	0	0	0	0
2009	0	0	0	0	0	0	0	0	0
	19,834	(381)	0	(16,946)	(17)	2,490	(372)	0	2,118

Source: RS&H, 1986.

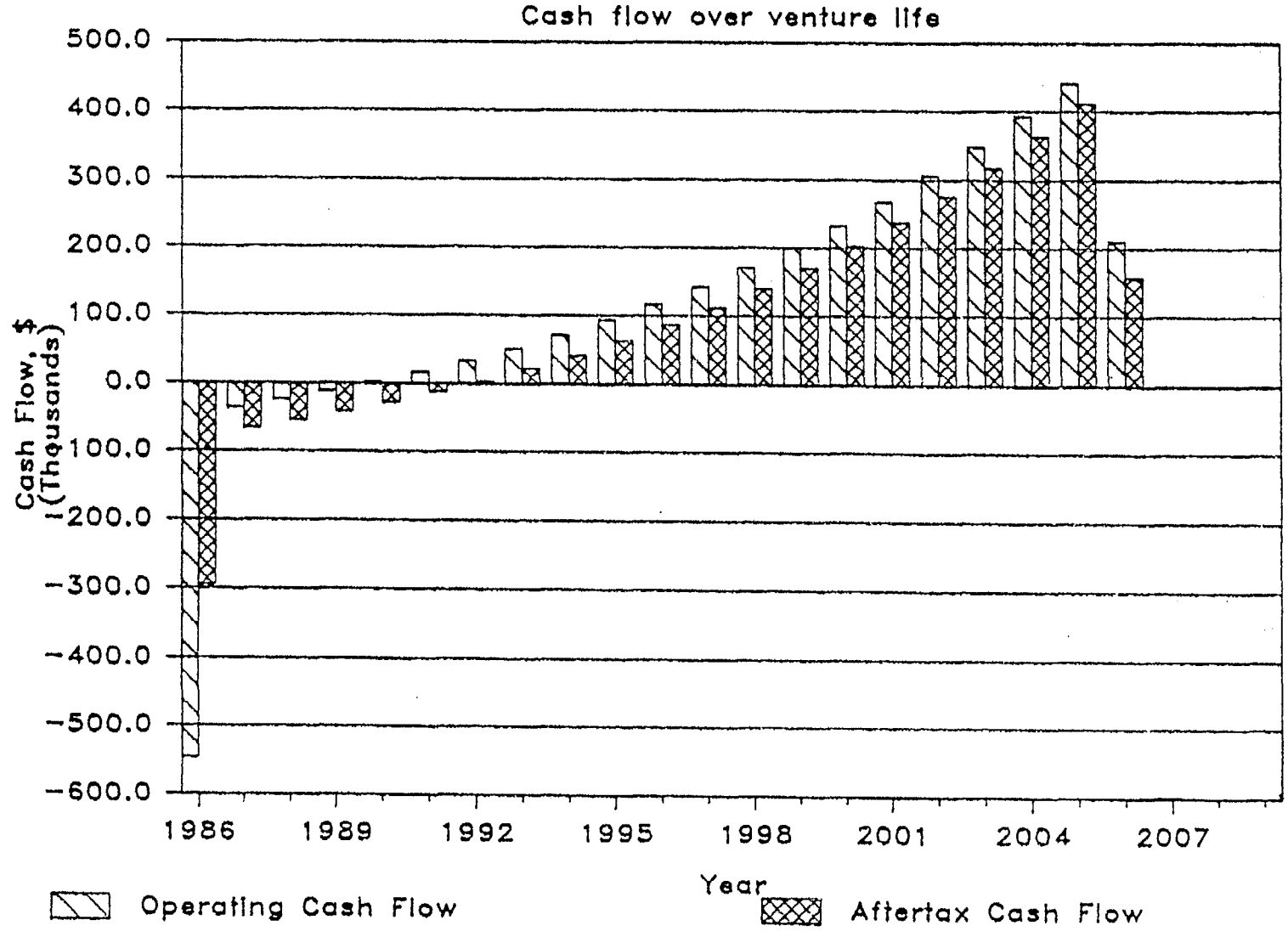

Figure 1
CASH FLOW PROJECTIONS

SOURCE: RS&H, 1985

AVI SUQUILLA AIRPORT
MASTER PLAN

Commerce (Bureau of Economic Analysis, BEA) and applied to the Regional Input/Output Modeling System (RIMS II). This model permits the examination of comparative economic benefits resulting from aviation industry expenditures for the goods and services of other industries and the earnings impact within a specific region. Using this method of analysis, the total direct demand figure was estimated to be 545,081, which represents the estimated sales activity that occurred at the Airport during 1984. The total earnings impact, or the total wages earned by regional workers, as a result was $315,560. This figure represents total, regionwide amounts that incorporate a multiplier effect. The employment effect, or total number of regional jobs generated by the sales activity at the Airport was 21. In addition to the economic impact analysis, an effort was made to describe the touristic character of the Parker area and the role that the Airport plays in accommodating visitors to the area. Since no information on tourism specific to the Parker area could be located, a study provided by the Yuma County Chamber of Commerce was used to approximate tourism in the Parker area.

SUMMARY OF RECOMMENDATIONS

As a result of the study effort, several recommendations were made throughout the report addressing various elements of the Airport and its operation. This summary consolidates those recommendations which are related to the more critical aspects of the Airport's operation and future development. Therefore, given the findings and conclusions of the Master Plan Update, it is recommended that:

- The existing apron be completely rehabilitated, and construction of additional apron and tiedown area be the first priority pursued by Airport management.
- The runway and taxiway surfaces be patched and seal coated as a second priority.
- The remaining projects identified in the program for improvements be implemented as financial capability permits.
- CRIT pursue the commercial development of airport land situated along State Highway 95, and industrial development of Airport

land on the south end of the Airport nearest the Town of Parker to increase the Airport's revenue base.

- Airport management seek to maximize revenues from Airport services by adjusting rates and charges to more closely represent the cost of improvements.
- A height restrictions ordinance be adopted to reflect FAR Part 77 surfaces as identified in this plan.
- Airport management coordinate with the Town of Parker and other organizations as necessary to develop a crash/fire/rescue (CFR) plan for the Airport.
- CRIT embark upon a study to describe more clearly the nature of seasonal visitors to the area in an effort to better market the Airport and its services.